No. 8100017

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Wilbur Ellis Company-Seed Division

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLI-[illegible]ANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT [illegible] THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC [illegible] OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EX-[illegible] OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, [illegible]ORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT [illegible] THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (8[illegible] 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SNAP BEAN

'Epoch'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 23rd *day of* September *in the year of our Lord one thousand nine hundred and* eighty-two

Attest:

Kenneth H. E[illegible]

Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R Block

Secretary of Agriculture

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

FORM APPROVED
OMB NO. 40-R3822

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY	1b. VARIETY NAME	FOR OFFICIAL USE ONLY
PVS 125-80-5	Epoch	PV NUMBER 8100017
2. KIND NAME: Snap Bean	3. GENUS AND SPECIES NAME: Phaseolus Vulgaris	FILING DATE 11/12/80 / TIME 1:00 A.M. (P.M.)
4. FAMILY NAME (BOTANICAL): Leguminosae	5. DATE OF DETERMINATION: August 10, 1980	FEE RECEIVED $ 500.00 / $ 250.00 / DATE 11/12/80 / 8/13/82

6. NAME OF APPLICANT(S)	7. ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)	8. TELEPHONE AREA CODE AND NUMBER
Wilbur Ellis Company Seed Division	E. 12001 Empire Way Spokane, Washington 99206	(509) 722-1774

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (*Corporation, partnership, association, etc.*)	10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	California	1924

12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS:

Wilbur Ellis Company - Seed Division
Attention: Floyd Weems
E. 12001 Empire Way, Spokane, Washington 99206

13. **CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:**

- [XX] 13A. Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
- [XX] 13B. Exhibit B, Novelty Statement.
- [ ] 13C. Exhibit C, Objective Description of the Variety *(Request form from Plant Variety Protection Office.)*
- [ ] 13D. Exhibit D, Additional Description of the Variety.

14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a). (If "Yes," answer 14B and 14C below.)* [ ] YES [XX] NO

14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? [ ] YES [XX] NO

14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? [ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? [ ] YES [XX] NO *(If "Yes," give name of countries and dates.)*

15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? [ ] YES [XX] NO *(If "Yes," give name of countries and dates.)*

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? [XX] YES [ ] NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

October 1, 1980
(DATE)

Floyd Weems
(SIGNATURE OF APPLICANT)

(DATE)

Wilbur Ellis Company
Seed Division Research
Floyd Weems, Director
(SIGNATURE OF APPLICANT)

FORM GR-470 (1-78)

INSTRUCTIONS

GENERAL: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and $500 fee ($250 filing fee and $250 examination fee) to U.S. Dept. of Agriculture, Agricultural Marketing Service, Livestock, Poultry, Grain and Seed Division, Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.

13a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.

13b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.

13c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.

13d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as, plant habit, plant color, disease resistance, etc.

14a If "YES" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "NO," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)

15a See section 42 of the Plant Variety Protection Act and section 180.7 of the Regulations and Rules of Practice.

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WILBUR-ELLIS COMPANY

SEED DIVISION

EPOCH

(13 A Exhibit A)

Epoch was derived from the following cross: (Bush Blue Lake #274 x University of Idaho Expermental #121-15-1)

Bush Blue Lake #274 is a widely used, white-seeded commercial variety developed by the Asgrow Seed Company. The variety is resistant to Bean Common Mosaic Virus (BCMV), but very susceptible to Curly Top Virus. The variety has very good processed quality characteristics, as a freezer or canner type.

University of Idaho Experimental #121-15-1 is a green-seeded processor type with Bean Common Mosaic Virus (BCMV), Bean Yellow Mosaic Virus (BYMV) and Curly Top Virus resistance. The line was supplied by Dr. Bill Dean at the University of Idaho.

Bush Blue Lake #274 was crossed with University of Idaho Experimental # 121-15-1. The resulting progeny was advanced to the F3generation. At that time, single plant progenies were made for plant, pod and mechanical harvesting characteristics, heat and moisture stress tolerance disease resistance, raw quality, sieve size and production potential. These single progenies were further advanced to the F_4 generation, with further critical evaluation of the above mentioned factors. In the F_6 generation they were found to be genetically stable, at which time an increase program was initiated, along with observational and replicated trials for yield and processed quality evaluations. The seed increase program has continued to our present quantities. We have observed no variants during the past six multiplications, which we feel is evidence of uniformity and stability.

MAIN OFFICE: 12001 Empire Way, Spokane, WA 99206 ● Cable Address: WILBURELL-SPOKANE ● 509-922-1774
SALES OFFICE: Route 1 Box 128 B, Northfield, Minnesota 55057 ● 507-645-4841

WILBUR-ELLIS COMPANY
SEED DIVISION
12001 Empire Way, Spokane, WA 99206
Cable Address: WILBURELL-SPOKANE
Phone 509-922-1774

EPOCH

(13B Exhibit B)

Wilbur-Ellis Company believes that we are the original and only breeder of the variety Epoch and base novelty upon the following:

Epoch is most similar to Bush Blue Lake 290 in plant architecture.

Epoch is resistant to Bacterial Brown Spot (Pseudomonas syringae), whereas Bush Blue Lake 290 is not known to be resistant.

Epoch's average sieve size is 85 percent 1-4 sieve, whereas Bush Blue Lake 290 is 60 percent 1-4 sieve and 40 percent 5-6.

Epoch is resistant to Curly Top virus, whereas Bush Blue Lake 290 is reported to be only tolerant.

FORM APPROVED: OMB NO. 40-R3822

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT C
(Bean)

OBJECTIVE DESCRIPTION OF VARIETY

BEAN (Phaseolus vulgaris L.)

NAME OF APPLICANT(S)
Wilbur-Ellis Company - Seed Division

ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
E. 12001 Empire Way
Spokane, Washington 99206

FOR OFFICIAL USE ONLY
PVPO NUMBER
PVS 125-80-5 8100017

VARIETY NAME OR TEMPORARY DESIGNATION
[redacted] Epoch

Place numbers in the boxes (e.g. [0][8][9]) for the characters that best describe this variety. Measured data should be for SPACED PLANTS. Ranges may also be given. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____. The location of test area is Quincy, Cheney & Othello, Washington Also Spooner, Wisconsin. Please answer questions appropriate for your variety if the information is available.

1. TYPE:

[2] 1 = Field *(dry-edible)* 2 = Garden

2. MARKET MATURITY:

[6][0] Days to edible pods

[0][0] Days to green shells

[0][8][0] Days to dry seeds

[1][7][6][0] Heat units to edible pods

[0][0][0][0] Heat units to green shells

[2][3][6][0] Heat units to dry seeds 50°F. Base

[0][0] No. days earlier than ..... [0]

..... Same as .. [7]

[0][4] No. days later than ..... [9]

1 = Tendercrop
2 = Kentucky Wonder
3 = Kinghorn Wax
4 = White Kidney
5 = Michelite 62
6 = Dwarf Horticultural
7 = Bush Blue Lake 290
8 = Other (specify below)
9 Oreg. #1604
10 BBL 274

3. PLANT:

[1] 1 = Determinate 2 = Indeterminate

[0][3][6] cm height

[0][5] cm shorter than ..... [10]

Same as .. [7]

comparison variety from above

[1][0] cm taller than ..... [9]

[3][2] cm spread

[2][-][4] Number primary branches near base

[1][0] cm narrower than ..... [10]

width same as ... [7]

comparison variety from above

[1] Branching habit: 1 = compact 2 = open

[1][0] cm wider than ..... [9]

[2] Main stalk: 1 = brittle 2 = wirey

[1] 1 = stout 2 = thin

4

3. PLANT: (Cont'd)

[3] Pod position: 1 = low 2 = high 3 = scattered

[4] Bush form (illustrated below): Bush Blue Lake #290

1 = spherical bush form 2 = stem bush form 3 = wide bush form 4 = high bush form

5 = other (specify) _____

4. LEAVES:

[2] 1 = smooth 2 = wrinkled

[1] 1 = dull 2 = glossy

[2] Size: 1 = small (Earliwax) 2 = medium 3 = large (Tendercrop)

[3] Color: 1 = light green (as light or lighter than Bountiful) 2 = medium green
3 = dark green (as dark or darker than Bush Blue Lake 290)

5. FLOWERS:

[1] Color: 1 = white 2 = cream 3 = pink 4 = lilac 5 = purple 6 = Other (specify)_____

[4][0] Days to 50% bloom

6. FRESH PODS: (Edible maturity, average for 20 pods)

[3] Exterior color: 1 = light green (as light or lighter than Bountiful)
2 = medium green
3 = dark green (as dark or darker than Bush Blue Lake 290)
4 = light yellow (Brittlewax)
5 = golden yellow (Cherokee Wax)
6 = green-red variagated (Horticultural)
7 = other (specify)

_____

% Sieve size distribution at optimum maturity for non-flat pods

Note:
1 = 4.76 mm to 5.76 mm
2 = 5.76 mm to 7.34 mm
3 = 7.34 mm to 8.34 mm
4 = 8.34 mm to 9.53 mm
5 = 9.53 mm to 10.72 mm
6 = 10.72 mm or larger

1	2	3	4	5	6
←		85% →		← 15%	→

3 sieve	[1][3] cm length	[0][9] mm width	[0][8] mm thickness
4 sieve	[1][3] cm length	[1][0] mm width	[0][9] mm thickness
5 sieve	[1][4] cm length	[1][1] mm width	[1][0] mm thickness
6 sieve	[1][5] cm length	[1][2] mm width	[1][1] mm thickness

5

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6. FRESH PODS: (Cont'd)

[4] Cross section pod shape: 1 = flat 2 = oval 3 = round 4 = heart – Pod wall medium thickness

[2] Creaseback: 1 = present 2 = absent

[1] Pubescence: 1 = none 2 = sparse 3 = considerable

[1] Spur: 1 = straight 2 = slightly curved 3 = curved

[2] Constrictions: 1 = none 2 = slight 3 = deep–After 4 sieve

[3] Pod flesh: 1 = light 2 = medium 3 = dark ---Dark green ring under epidermis

[1][7] mm spur length

[2] Fiber: 1 = none 2 = sparse 3 = considerable

6– [7] Number of seeds per pod

[1] Surface: 1 = smooth 2 = rough

[2] Suture string: 1 = present 2 = absent

[1] Seed development (Snap Bean): 1 = slow 2 = medium 3 = fast

[1] Machine harvest: 1 = adapted 2 = not adapted – Exceptional

[3] Pod flavor: (1) Standard (Tendercrop)
(2) Mild Blue Lake (BBL 274)
(3) Strong Blue Lake (Pole FM1)
(4) Mild Romano (Roma)
(5) Strong Romano (Pole Romano)
(6) Other (specify) _____

7. SEED COAT COLOR:

[1] 1 = Monochrome 2 = Polychrome [1] 1 = shiny 2 = dull

[1] Primary color: } 1 = white 2 = yellow 3 = buff 4 = tan

[0] Secondary color: } 5 = brown 6 = pink 7 = red 8 = purple
9 = blue 10 = black 11 = other (specify) _____

[1] Color Pattern: 1 = none 2 = splashed 3 = mottled 4 = striped 5 = flecked 6 = dotted

[0] Secondary color location: 1 = hilar ring 2 = ventral surface
3 = sides 4 = dorsal surface
5 = not restricted to any area 6 = combination of location (specify below)

_____

[0] Hilar ring on colored seeds: 1 = absent 2 = narrow 3 = butterfly shaped

8. SEED SHAPE AND SIZE:

[2] Hilum view: 1 = elliptical 2 = oval 3 = round [2] Cross section: 1 = elliptical 2 = oval 3 = cordate 4 = round

[1] Side view:

1 = oval to oblong

2 = round

3 = reniform

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8. SEED SHAPE AND SIZE: (Cont'd)

[2] 1 = truncate ends 2 = rounded ends

[2][4] gm/100 seed

[0][6] gm/100 seed lighter than ..... [1]

[1][0] [1][2] " " " " " gm/100 seed same as .... [2]

[0][0] gm/100 seed heavier than ..... [0]

COMPARSION VARIETIES

1. Galamore
2. BBL #290
3. Lake Superior
4. Green Pak

comparison variety ~~from page one~~

9. ANTHOCYANIN: (1 = absent 2 = present)

[1] Flowers [1] Stems [1] Pods [1] Seeds [1] Leaves

10. DISEASE RESISTANCE (0 = not tested 1 = susceptible 2 = resistant):

[0] Anthracnose (specify race below) _____

[0] Rust (specify race below) _____

[0] Powdery mildew

[1] Fusarium root rot

[0] Pythium root rot

[0] Rhizoctonia root rot

[2] Pythium wilt

[0] Angular leaf spot

[0] Bacterial wilt

[0] Halo blight (specify race below) _____

[0] Fuscous blight

[0] Red node virus

[0] Pod mottle virus

[2] Bean common mosaic virus (specify strain below) NY 15; BV_1

[0] Mosaic mottle

[0] Black root

[0] Bean yellow mosaic virus

[2] Curly top

[2] Other (specify below) Bacterial Brown Spot (Pseudomonas syringae)

11. INSECT RESISTANCE: (0 = not tested 1 = susceptible 2 = resistant)

[0] Aphids

[1] Leaf hopper

[0] Lygus

[0] Pod borer

[0] Root knot nematode

[0] Seed corn maggot

[1] Thrips

[0] Weavils

[1] Other (specify below) Mites

12. PHYSIOLOGICAL RESISTANCE: (0 = not tested 1 = susceptible 2 = resistant)

[2] Heat [0] Cold [2] Drought [0] Air pollution

13. COMMENTS: Outstanding characteristics - Bacterial Brown Spot Resistant; heat and drought tolerant.

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WILBUR-ELLIS COMPANY

SEED DIVISION

EPOCH

(13 ~~B~~ D Exhibit ~~B~~ D)

clb per letter recd 10/9/81

Wilbur-Ellis Company believes that we are the original and only breeder of the variety Epoch and base novelty on the following:

Epoch is Bacterial Brown Spot (Pseudomonas syringae) resistant, whereas no other commercial variety presently used is known to have such resistance.

Epoch average sieve size is 85 percent 1-4 and 15 percent 5-6, whereas Bush Blue Lake #274 and Idaho #121-15-1 are 60 percent 1-4 and 40 percent 5-6.

Epoch seeds are 6 grams per 100 seeds lighter than Galamore; 10 grams lighter than Lake Superior; 12 grams lighter than Green Pak.

Epoch average height is 36 centimeters, whereas Bush Blue Lake #274 averages 41 centimeters.

Epoch is tolerant to heat and moisture stresses similar to Idaho #121-15-1, whereas Bush Blue Lake #274 is susceptible.

Epoch is Curly Top Virus resistant as Idaho #121-15-1, whereas Bush Blue Lake #274 is very susceptible.

Epoch foliage is dark green, whereas Idaho #121-15-1 and Bush Blue Lake #274 is light to medium green.

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